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An Overview of the Rail Industry in the United States of America

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An Overview of the Rail Industry
in the United States of America

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Abstract

This paper, along with a companion working, resulted from collaborative work of an economist from Poland and an economist from the United States of America (USA) that compares the railroad industries of Poland and the USA. The companion working paper is Part A entitled, "An Overview of the Rail Industry in Poland: 1975-1984." This paper almost exclusively focuses on the rail industry in the USA.

The paper attempts to provide a picture of the role and nature of the rail industry in the USA for transportation economists not familiar with the transportation industries in the USA. The interrelationships between rail firms in the private sector and the government sector are analyzed. The cost and operational characteristics of rail firms are discussed. Selected important policy and managerial issues such as improving labor productivity and proposed legislation to reestablish some of the regulations eliminated in 1980 are briefly discussed.

An Overview of the Rail Industry in the United States of America

I. Overview of the United States Economy and the Provision of Transportation

The U.S. economy, as illustrated in Table 1, is both diversified and changing over time. Since 1929 agriculture and mining have become less important relative to the other sectors while services have become more important. Manufacturing has remained fairly constant although its relative importance dropped somewhat in the last decade. Certain sectors within the manufacturing component of Gross National Product (GNP) have grown much faster than others. For example, chemicals, electrical machinery, and instruments have grown rapidly while textile, apparel, and lumber industries have grown much less rapidly. The fast growth sectors tend to produce commodities that have higher value per unit of weight and many have lower weight--factors which adversely affected the development of railroads in comparison of the trucking industry.

--Insert Table 1--

In addition, there have been shifts in the location of manufacturing activities during the last sixty years, as indicated by the information in Table 2. Along with this interregional shifting of manufacturing, which hurt the railroads in the East, there was a shift of manufacturing activities from the central areas of cities to areas on the outskirts of cities--a shift that reflected the changing technologies of manufacturing and aided the development of the trucking industry and adversely affected the railroad industry.

--Insert Table 2--

Beginning in the 1830s railroads were constructed in the Eastern part of the United States of America (United States). By the 1850s rail lines had been constructed between Chicago and the East coast. The railroads serving

Chicago and the areas to the West were constructed in the 1850s with the first transcontinental railroad service available in 1869. The peak building decade was in the 1880s with more than 70,000 miles constructed. Railroad construction was virtually ended by 1910 with the peak U.S. railroad mileage being 254,037 in 1916.¹

In the latter part of the 19th century and the first part of the 20th century, the rail industry was the dominant mode. In 1925 the railroads hauled 80 percent of the intercity freight in terms of ton-miles.² More striking was the importance of railroads as carriers of passengers for intercity transportation. In 1920 the railroads' share of the for-hire intercity passenger market was 77 percent and was nearly 50 percent as recent as 1950. Today no railroads in the private sector carry any intercity passengers and Amtrak, the quasi-public rail passenger carrier, hauls only 5.7 percent of the passenger market in terms of passenger-miles and hauled only one-third the amount hauled by the railroads in 1929.³

Unfair governmental promotional and regulatory policies, the change in the commodity mix in the United States to higher value commodities, the increase in intermodal competition, particularly from the trucking industry for the higher-value goods, and inept railroad management have been offered as factors in the relative decline in the rail industry.⁴ Railroads suffered from very low rates of return throughout the 1950s and 1960s and were forced to defer maintenance on their lines which reduced their ability to provide quality service. This diminished level of service led to a further erosion of traffic. The severity of the problem became very visible in 1970s with numerous railroad bankruptcies in the East and Midwest. Although the railroads have not earned their cost of capital since the 1950s, the regulatory

reform measures passed in 1980 have increased the economic viability of the industry.

As Table 3 indicates, the rail industry is the most important mode of freight transportation in the United States in terms of ton-miles. The rail industry accounted for about 900,000 million revenue ton-miles of freight or about 37 percent of the freight market in 1985. The rail industry, including both the freight railroads and Amtrak, employed about 323,000 people, which is much less than the employment in the U.S. trucking industry.⁵

The information in Tables 3 and 4 provides an overall summary of the absolute and relative importance of the intercity railroad industry in the United States. Tons carried by natural gas pipelines have traditionally not been included in the transportation statistics in the United States, which inflates the relative importance of railroads along with the other modes of transportation. In addition, the relative importance of railroading in intercity transportation of freight is further diminished when stated in terms of tons, not ton-miles. In 1985, when the railroad industry's share was 37 percent in terms of ton-miles, its share of tons of freight hauled was only 26.5 percent. The trucking share in terms of tonnage was about 40 percent in 1985.⁶ In terms of freight revenue earned, the railroad industry's total freight bill was about 29 billion dollars in 1985 or about 11 percent of the total freight revenue in 1985.⁷ See Table 5.

--Insert Tables 3, 4 and 5--

Although railroads are very important carriers of bulk commodities in the United States, their importance as carriers of manufactured commodities is substantially less. The value per ton of manufactured commodities shipped tends to be higher than the value per ton of nonmanufactured commodities, such as agricultural and mining products. Table 6 contains information on

the relative importance of the different sectors of U.S. manufacturing in terms of tons shipped, and also shows the relationship between the value per ton of the commodity and the degree of participation by the rail industry. In general, the more valuable per ton the commodity is, the smaller the share of traffic moving by rail.

--Insert Table 6--

II. Structure of the Rail Industry in the United States

Rail freight services in the United States are almost exclusively provided by firms in the private sector while rail passenger services are almost exclusively provided by Amtrak, a government owned and operated railroad. The privately owned railroads are considered common carriers and thus must serve the general public. The recent regulatory reform has allowed, however, the rail industry to operate less as common carriers and more like contract carriers.

The U.S. railroad industry is comprised of several classes of railroads grouped according to size. Class I carriers are carriers that earn at least \$50 million in operating revenues when computed on an adjusted basis to 1978 price levels. For example, in 1985, a railroad had to earn 87.9 million dollars to be classified as a Class I carrier. Excluding Amtrak, there are now 22 Class I railroads.⁸ The smaller non-Class I carriers are more numerous with 475 such carriers in 1986.⁹

Despite their numerical domination by the smaller railroads, Class I railroads account for about 90 percent of the tons of freight moved by the railroad industry, 93 percent of its revenues, 90 percent of its employees and about 85 percent of total railroad mileage.¹⁰ In recent years, numerous smaller, shortline railroads have been started to operate on lines sold by the Class I carriers.¹¹

The number of rail carriers in the United States has been diminishing over time with a substantial reduction in the number of Class I carriers. Part of the reduction of Class I lines has resulted from the increasingly higher revenue standard used to qualify a carrier as a Class I carrier, but most of the reduction has resulted from several bankruptcies and numerous mergers. For example, the number of Class I carriers dropped from 39 to 22 between 1980 and 1986, a time period in which the standard used to qualify a carrier as a Class I carrier remained the same. Four mergers involving the largest railroads in the United States, carriers responsible for 55 percent of all rail revenues in a recent year, have taken place since 1980.¹² Had the proposed merger of the Southern Pacific Corporation and the Atchison, Topeka and Santa Fe railroad been approved, the United States would have been served by six major railroads along with a small number of Class I regional carriers. As Table 7 reveals, these six firms would have accounted for about 85.5 percent of the operating revenues of all Class I railroads in 1985. Despite the merger activity, there are still no transcontinental railroads in the United States. A shipper must use at least two rail carriers for transcontinental rail shipments.

--Insert Table 7--

In recent years, several railroads in the United States have been acquiring carriers of other modes which could have significant effects on the nature of the structure of the rail industry and the transportation industry in general. The CSX Corporation, the largest railroad in terms of revenues, acquired the second largest barge line in 1984 and a major international water carrier in 1986. The Norfolk Southern Corporation, the fourth largest railroad, acquired one of the ten largest trucklines in 1985 and the Union Pacific Corporation purchased one of the ten largest trucklines in 1986.

Burlington Northern is using a slightly different approach by acquiring a number of smaller trucklines. The water carrier and trucking industries strongly but unsuccessfully opposed these rail intermodal acquisitions.

III. Operating Characteristics of U.S. Freight Railroads

In 1985, the U.S. railroads operated over a network of 145,700 miles of route with more than 242,300 miles of track. Almost all of the track is of standard gauge, which is four feet and eight and a half inches. Rehabilitation and reconstruction of the rail lines in recent years have produced a significant portion (almost 50 percent) of the track mileage with 120 pounds per yard rail.¹³ As Table 8 indicates, the route and track mileage in the United States has been declining over the last 50 years with a very substantial decrease since 1975. Eased regulatory constraints with respect to abandonment and the large number of mergers, which has created duplicate lines for railroads, have led to the significant reduction in lines in the last 10 years.

--Insert Table 8--

Although there has been a substantial reduction in the number of locomotives from 28,210 to 22,932 since 1975, the actual reduction in locomotive horsepower has been much less. The dominance of the diesel-electric locomotive is indicated by the fact that all but 63 of the 22,932 units were diesel-electric. In sharp contrast to the situation in Poland, only 61 electric units were used in 1985. The steam engine has virtually been eliminated from the rail industry in the United States.¹⁴

Table 9 provides an overview of the rail freight car fleet. Only about two-thirds of the total freight cars are owned by the railroads with shippers and car companies owning the balance. The percentage of cars owned by railroads varies substantially by car type with virtually all equipped box cars

owned by the carriers while less than one percent of the tank cars are owned by the railroads. There has been a substantial reduction in the number of freight cars in the last 45 years--from 2,600,000 to 1,421,000. Total capacity has not been reduced, however, due to an increase in the average freight car capacity from 46.3 tons to 84.3 tons.¹⁵ Since 1975 the most precipitous decline has been in the number of plain box cars and refrigerator cars with their 1985 numbers only 44 percent and 55 percent respectively of their 1975 numbers.¹⁶

--Insert Table 9--

In the 1985 the U.S. railroad industry moved 19,400,000 revenue carloadings for 876,984,000,000 revenue ton-miles. On average there were 71.8 cars per freight train with 67.7 tons per carload. The trains averaged 2,574 tons each.¹⁷ The average system haul was 635 miles in 1985 which represents an increase of about 120 miles over the average length of haul in 1975. The average system length of haul is longer than the average length of haul per carrier. For 1985, a year in which the average length of haul for the rail system was 635 miles the average length of haul for the carrier was 443.¹⁸

These data highlight a significant aspect of rail movements in the United States. Many rail movements involve more than one railroad. In the late 1970s, about 75 percent of rail tonnage was interchange traffic.¹⁹ There was no true transcontinental railroads in the United States although the recent mergers, particularly the end-to-end mergers, have increased the carriers' ability to provide single-line service for more of their moves.

Railroads provide relatively low cost service for shippers of many types of commodities and movements. Overall, the average revenue per ton-mile in 1985 was 3.05 cents.²⁰ There is substantial variation in the revenue per ton-mile with respect to the type of commodity under consideration. For exam-

ple, in 1984 when the overall average was 3.09, the revenue per ton-mile for the rail movement of transportation equipment was 11.01 cents, waste and scrap materials, 5.11 cents, coal, 2.5 cents, and field crops, 2.3 cents.²¹

The allocation of the revenue dollar among the various expense categories including profit for 1985 was 46.9 cents for labor, 8.9 cents for fuel and power, 7.9 cents for depreciation, 7.7 cents for payroll taxes, 6.3 cents for net operating income, 3.7 cents for loss and damage, injuries and insurance, 2.4 cents for income taxes, and 23.9 cents for other expenses.²² The importance of the labor component helps explain why the rail industry has implemented labor saving technology over the last 50 years. In 1929 the railroads employed 1,600,000 people while in 1985 the railroads employed only 301,000 not counting the 20,000 plus Amtrak employees.²³ Railroad labor is represented by twenty-eight different unions which creates inefficiencies due to inflexibility in work rules.²⁴ In recent years, rail management has taken an aggressive stance on work rules and staffing requirements.

IV. Commodities Shipped by Rail

The railroad system in the United States has slowly evolved into a system that tends to carry large quantities of heavy-weight, low-value commodities--bulk commodities. Thus, the railroads compete with barge lines and pipelines for much of their business. It should be noted that railroads still carry a wide variety of commodities, including some high value goods. More than 50 percent of the carloadings, however, involve the movement of bulk commodities.²⁵

Table 10 contains information on the rail distribution of tonnage and revenues among major commodity groups in 1985. The tonnage of rail movement of coal, the most important commodity carried by rail with more than 5.7 million carloads in 1985, increased by 32 percent between 1975 and 1985.²⁶

The difference in the levels of freight rates among commodities is indicated by the disparity in the rankings of the commodity groups according to tonnage and revenue. There has been a decrease in the rail tonnage of most of the commodity groups with substantial decreases being experienced in metallic ores and primary metal products. The large decline in the metallic ore carloadings reflect the reduction in the production of steel in the United States.

--Insert Table 10--

Not indicated in the table is the very small amount of less-than-carload traffic that the railroads transport. This traffic, once a very important component of the rail business, amounted to only 8,000 carloads in 1985 out of a total of more than 19,400,000 carloads moved.²⁷ The U.S. railroads provide transportation services that are more wholesale in nature than retail. Two types of rail traffic--coal and piggyback movements--merit additional comments.

Coal is very important to railroads and railroads are very important to the shippers of coal. In the United States railroads are responsible for moving about 60 percent of the coal in the terms of tons and 70 percent of the coal with respect to ton-miles.²⁸ Coal production is an important economic activity in both Poland and the United States. In 1984 the United States ranked number one in the world by producing 20 percent of the world's coal, and Poland ranked number 5 by producing 6 percent of the world's coal. In the same year, Poland was the third largest exporter of coal ranking behind the United States and Australia.²⁹

Table 11 reveals that the coal moved by railroads in the United States is not evenly distributed among all the class I railroads. The three largest coal carriers account for more than 70 percent of all the rail coal tonnage.

The Burlington Northern has benefitted from the shifting of the production of coal from the Eastern part to the Western part of the country. In 1973, when the Arab oil embargo was implemented, only 12.8 percent of the nation's coal was produced west of the Mississippi River--now almost 36 percent of the nation's coal production comes from the west, most from the Powder River Basin.³⁰ As Table 11 indicates, coal is very important to the major coal carrying railroads.

--Insert Table 11-- .

In terms of carloadings, piggyback traffic is now second only to coal. Piggyback traffic carloads accounted for almost 17 percent of total carloadings in 1986.³¹ Piggybacking is defined in this paper as the line-haul movement of a trailer on flat car (TOFC) or container on flat car (COFC) by rail with local pickup and delivery by truck. In 1985, more than 4,600,000 trailers and containers were transported by rail.³²

The rapid growth of the piggyback traffic has been attributed to a number of developments. For instance, the development in the late 1970s of railbridge services, particularly land bridge services, for imports and exports and transcontinental movements between Europe and the Orient, provided a substantial amount of demand for piggyback service. Another major development occurred in 1981 when the ICC exempted from regulation all rail and truck service provided by railroads in connection with domestic and international piggyback movements. The introduction and increased use of the double stack trains has created the recent surge in piggyback movements.

V. Rail Productivity

With respect to most measures of productivity and efficiency, the rail industry in the United States has made significant improvements in recent years. Most impressive have been the gains in the productivity of labor.

Table 12 provides several measures of labor productivity for the 1975 to 1985 time period. Particularly impressive are the gains in productivity respect to the freight revenue ton-miles per employee and employee hour paid for--gains of 81 percent and 77 percent respectively for the 11 year period.

--Insert Table 12--

The railroad fuel efficiency has been improving over time. In 1975 the railroad industry was producing 206 ton-miles per gallon of fuel consumed. In 1980 that figure was 236 ton-miles and by 1985 the efficiency had increased to 282 ton-miles per gallon of fuel consumed.³³ The fuel efficiency of railroads relative to the other modes of transportation in the United States is indicated in Table 13.

--Insert Table 13--

Most indices indicate greater productivity in the use of capital inputs. For the years 1975, 1980, and 1985 the revenue ton-miles per mile of road was 3.7 million, 5.1 million, and 5.4 million respectively.³⁴ The average freight train load increased from 1,939 tons in 1975 to 2,574 tons in 1985 reflecting both an increase in the number of cars per train (from 68.6 cars to 71.8 cars) and increase in the net ton-miles per loaded car-mile (from 51.7 tons to 62.7 tons).³⁵ In contrast to these significant advances, the data on the average number of trips per year for cars have remained relatively stable--actually dropping from 16.6 in 1975 to 16.2 in 1985.

VI. Government Support and Control of Railroads

Each of the three levels of government in the United States, the federal government, state governments, and local governments, regulates railroads to some degree. Unlike the situation facing trucking, there is substantially less support from each of the three levels of government for railroads, particularly at the state and local levels. In addition, in contrast to the

trucking situation, the federal government has intervened directly in rail operations by owning and operating Amtrak, the railroad that provides all rail passenger service in the United States, and until recently owned Conrail, a major railroad serving the Northeast part of the United States.

All three levels of government promoted the early development of the rail industry in the United States by buying stock, lending money, guaranteeing loans, providing cash grants, donating land for right-of-way purposes, donating other land which the railroads used to acquire cash, donating materials and even labor on occasion. The most important federal aid to railroads came in the form of land grants between 1850 and 1871. More than 130 million acres of land, an area about twice the size of Poland, were given to the railroads in an effort to expand the rail system and stimulate the economic development of the Western part of the United States.³⁶

In more modern times, the level of direct support by government has been much less. During World War I the railroads were nationalized but were returned to the private sector in 1920. Since 1950 the government expenditures on railroads have been much less than what the other modes have received. Between 1950 and 1970 the rail industry did not benefit from any government expenditures for facilities or services. Two major changes took place around the beginning of the 1970s--the federal government in effect nationalized portions of the rail industry and provided direct subsidies and loan guarantees to help the railroads to maintain service and rehabilitate their track. In 1985 the total federal, state and local government expenditures for transport facilities and services amounted to \$76 billion dollars. The rail industry received only 1.2 percent of that amount.³⁷

After 1958 the decline in the quantity and quality of rail passenger service and the volume of passenger traffic by rail was rapid. In 1970

Congress established the National Railroad Passenger Corporation, which is referred to as Amtrak, to take over the national passenger service from the private sector. Congress acted in order to avoid complete elimination of intercity rail passenger service and to enhance the service between the major population centers. Rail passenger service had become a substantial money losing operation for the carriers.

On May 1, 1971 Amtrak began operating with a national system of 23,000 miles. It now has a 24,000 mile system. In 1972 Amtrak's ridership was 16.6 million passengers; in 1985, 20.8 million passengers. In 1971 Amtrak owned only locomotives and cars and had to contract with private carriers for use of roadbed and crews. Amtrak now owns more than 650 miles of track comprised of the Northeast Corridor between Boston and Washington, D.C.³⁸

The level of government support of this quasi-public corporation has long and continues to generate debate among transportation policy makers in the United States. Federal appropriations reached a high of almost \$900 million in 1981 but since that time appropriations have declined. For fiscal year 1986 the appropriations were \$591 million. In 1981 legislation was introduced that requires Amtrak to recover at least 50 percent of its operating cost from its fare revenue. In 1978 Amtrak's revenue was only 37 percent of its operating costs while by 1986 fare revenue covered 62 percent of operating costs. Calls for a substantial cutback in Amtrak services and even complete elimination of Amtrak continue to be heard.³⁹

The bankruptcies of several railroads in the Northeast part of the United States, including the Penn Central, the nation's largest railroad at the time, in the late 1960s and early 1970s led to Congressional action to help maintain rail service. The bankrupt railroads earned approximately 18 percent of the country's railroad revenues, employed almost 21 percent of the

railroad employees, and owned about 13 percent of the nation's rail mileage.⁴⁰

In 1973 Congress passed the Regional Rail Reorganization Act which established a nonprofit planning organization and the Consolidated Rail Corporation (Conrail). The planning agency was given authority to restructure the rail network in a 17-state area to provide funds to railroads in the area to maintain operations while restructuring took place and before Conrail began operations. Conrail became operational in 1976 and took over about 17,000 miles of line, more than 90,000 employees, 162,000 freight cars, and about 5000 locomotives.⁴¹ Conrail incurred much greater losses than expected during its first years of operation due to excessive work force, poor equipment utilization, and old facilities.⁴²

Conrail essentially became a government owned and operated railroad. In the early 1980s several steps were taken to increase the financial viability of Conrail. Congress passed the Staggers Rail Act of 1980, which provided general regulatory reform, and the Northeast Rail Services Act of 1981 which made it easier for Conrail to abandon unprofitable light density lines, transfer its commuter operations to local communities and Amtrak, and expedite the reduction in work force.

The 1981 legislation provided for the eventual return of Conrail to the private sector--either in a piecemeal fashion to a number of carriers buying individual lines or as an entire unit. In 1981, Conrail started earning operating profits. The U.S. Department of Transportation solicited offers for Conrail with the Norfolk Southern receiving support from the DOT as it preferred buyer. Congress, which had final approval of the sale, did not respond favorably to the sale of Conrail to the Norfolk Southern because of

anticompetitive concerns. Conrail was sold as one entity in March of 1987 and now operates as a separate railroad in the private sector.

More important than government promotion of railroads has been the regulation of railroads, particularly by the federal government. Railroad regulation, which has a long history in the United States, has undergone substantial changes in the last decade. The following is a brief overview of the nature and extent of regulation of the railroad industry in the United States.

Regulations, which are used to control or alter the behavior of transportation firms, can be grouped into two categories--economic or social regulations. In the area of social regulations, the primary focus is on safety with the Federal Railroad Administration of the U.S. Department of Transportation having primary responsibility. Each of the state governments also regulates railroads with respect to safety with much of their focus on enforcing federal regulations. Some of the regulatory control of the railroad industry, particularly in the environmental area, is provided by non-transportation agencies such as the Environmental Protection Agency.

On the other hand, economic regulation of railroads concerns their pricing behavior, certain dimensions of their service, entry and abandonment of markets, and selected financial transactions with acquisition of other railroads and nontransportation firms being the most important. Before the 1870s, although they were viewed as common carriers with additional public responsibility, railroads were free to construct lines and operate in a laissez-faire manner. The lack of regulation led to an overbuilding of the rail system in many parts of the country. In many markets there was excessive rail competition while at the same time no rail competition existed at

other points. This situation led to substantial price discrimination, which, among other rail practices, turned the public against the railroads.

The economic regulation of railroads actually started at the state level with the enactment of the Granger Laws. Federal economic regulation of railroads was established in 1887 when Congress passed the Act to Regulate Commerce, legislation that had actually been under consideration since 1874. The Act to Regulate Commerce, later changed to the Interstate Commerce Act, still serves as the cornerstone for transportation regulation in the United States. The 1887 Act attempted to prevent various types of price discrimination, unreasonably high rates, rebating, and pooling of traffic. In addition, the act created the Interstate Commerce Commission (ICC), the first federal government regulatory agency which still functions today.

As a result of the Transportation Act of 1920, federal regulation of railroads was expanded to the regulation of minimum rates, abandonment and security issues. All traffic and most other aspects of carrier behavior were placed under the control of the ICC. Although minor changes were made to federal regulation over the years, the basic regulatory structure for railroads remained unchanged until 1976.

The regulatory reform movement began with the Railroad Revitalization and Regulatory Reform Act of 1976 (4-R Act). The 4-R Act attempted, among other things, to remove certain railroad rates from maximum rate regulation, grant railroads more ratemaking flexibility, and provide expeditious handling of railroad mergers. The 4-R Act was passed in recognition that the railroads were no longer monopolies in most markets and that they needed additional freedoms to react to the market forces. For a variety of reasons, including the restrictive implementation of the act by the ICC, the 4-R Act was not very effective in reaching its objectives.

Because of this failure and increasing railroad problems, Congress passed the Staggers Rail Act of 1980 which provided additional freedoms to the railroads. Particularly important was the legalization of contract rates by railroads which has had a dramatic impact on the nature of rail pricing and service. Railroads began operating more like contract carriers and less like common carriers. As of July 1986, more than 41,000 rates had been filed with the ICC. More than 62 percent of the coal tonnage and 57 percent of the grain tonnage were moving under contract rate agreements at mid-year 1985.⁴³ Other provisions, which strengthened provisions originally established by the 4-R Act, provided for the exemption of certain types of traffic from economic regulation, eliminated most aspects of collective ratemaking by railroads, and allowed the railroads to reduce rates to variable costs to capture traffic from other modes.

In short, the nature and amount of regulation of the railroad industry have undergone substantial changes in the United States. The thrust of the changes have forced the railroads to act individually, indirectly led to the increased merger activities, and have allowed railroads to treat different shippers differently with respect to pricing and service offerings. It should be noted, however, that a substantial amount of economic regulation remains. In addition, the federal government has preempted most of the regulatory powers from the states with respect to railroads.

VII. Current U.S. Rail Industry Issues and Problems

The rail industry currently faces a number of problems and issues but issues related to labor and proposed legislative changes to reimpose some rail regulations are the most important. Industry and government concerns about railroad safety issues have also increased in recent months.

Despite a decrease of 103,000 employees between 1982 and 1986 by Class I railroads, management continues to see excessively high labor costs as a major problem. The use of nonunion, less costly labor in the truckload component of the trucking industry, a major competitor of the rail industry, has highlighted the importance of the issue. Management is attempting a number of initiatives to reduce labor costs. For instance, Burlington Northern is attempting to negotiate with its labor for the right to use two men crews on its trains serving new business. Overall, the industry has been reducing its crew size with the biggest development being in 1982 with the beginning of the process to eliminate cabooses. More flexible work rules and the reduction in the number of labor unions involved in rail operations are two additional important initiatives being pushed by railroad management.

In the immediate future the most troublesome picture is the threat of Congressional action that would revoke some of the market freedoms that were granted in 1976 and 1980. The legislation is being lobbied for by electric utilities and coal producers, shippers that feel that rail deregulation has been harmful to them. The basic thrust of the proposed legislation would reduce the railroads' ability to price discriminate among classes of shippers, would restrict the ICC's ability to exempt traffic from regulation, would lengthen the abandonment process, and would give states more control over intrastate rates. Another legislative proposal would amend one of the existing antitrust laws to allow shippers to sue railroads for treble damages if wronged by a railroad. Presently shippers can only collect single damages under the Interstate Commerce Act.

As a result of a number of rail accidents in 1986, including one involving Amtrak, legislation has been introduced in Congress to provide the U.S. Department of Transportation with greater authority to regulate directly the

railroad employees who have safety related responsibilities. Most of the railroad unions have reacted negatively to these proposals and management has also expressed concerns about additional regulations.

NOTES

1. Donald V. Harper, Transportation in America (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1982), p. 217.
2. "Railroads and the Marketplace," Association of American Railroads, Revised 1987, p. 9.
3. "Railroad Facts 1986," Association of American Railroads, September 1986, p. 32.
4. See A Prospectus for Change in the Freight Railroad Industry, U.S. Department of Transportation, October 1978, Chapter 2 for a discussion of these factors.
5. "Railroad Facts 1986," Op. Cit. p. 56.
6. Transportation in America, Transportation Policy Associates, March 1987, p. 7.
7. Ibid., p. 4.
8. "Railroad Facts 1986," Op. Cit., p. 2.
9. "Railroad Ten-Year Trends," Association of American Railroads, Volume No. 3, 1986, Table I-2.
10. "Railroad Facts 1986," Op. Cit., p. 2.
11. See John F. Due, "Abandonment of Rail Lines and the Smaller Railroad Alternative," paper presented in the Distinguished Scholars Lecture Series in Transportation Policy, College of Business Administration, Iowa State University, 1987 for additional discussion of the development of shortline railroads.
12. Michael R. Crum and Benjamin J. Allen, "U.S. Transportation Merger Policy: Evolution, Current Status, and Antitrust Considerations," International Journal of Transport Economics, Vol. XIII, No. 1, February, 1986, p. 51.
13. "Railroad Ten-Year Trends," Op. Cit., Table III-A-3.
14. Ibid., Tables III-A-7 and III-A-8.
15. "Railroad Facts 1986," Op. Cit., pp. 46 and 48.
16. "Railroad Ten-Year Trends," Op. Cit., Table III-A-10.
17. "Railroad Facts 1986," Op. Cit., p. 9.
18. Transportation Policy Associates, Op. Cit., p. 24.
19. Harper, Op. Cit., p. 236.

20. "Railroad Facts 1986," Op. Cit., p. 9.
21. The Coal Book, Association of American Railroads, p. 34.
22. "Railroad Facts 1986," Op. Cit., p. 11.
23. Ibid., p. 56.
24. John J. Coyle, Edward J. Bardi and Joseph L. Cavinato, Transportation, 2nd ed. (St. Paul: West Publishing Company, 1986), p. 69.
25. Ibid., p. 58.
26. "Railroad Ten-Year Trends," Op. Cit., Table III-C-6.
27. "Railroad Facts 1986," Op. Cit., p. 25.
28. The Coal Book, Op. Cit., p. 18 and Robert Lieb, Transportation, 3rd. ed. (Reston, VA: Reston Publishing Company, 1985), p. 451.
29. The Coal Book, Op. Cit., pp. 9-10.
30. Ibid., p. 3.
31. "Railroads and the Marketplace," Op. Cit., p. 36.
32. "Railroad Facts 1986," Op. Cit., p. 26.
33. "Railroad Ten-Year Trends," Op. Cit., Table III-D-3.
34. Ibid., Table III-E-1.
35. Ibid., Tables III-E-2, III-E-5 and III-E-7.
36. Harper, Op. Cit., pp. 378-379.
37. Transportation Policy Associates, Op. Cit., p. 16.
38. Lenore Sek, "Federal Assistance to Amtrak," Congressional Research Service, Report No. 86-77E, May 1986, p. 3.
39. Sek, Op. Cit., and "Passenger-Miles, Revenues Set Records for Amtrak," Rail News Update, No. 2467, March 4, 1987, p. 2.
40. Harper, Op. Cit., p. 387.
41. Ibid., p. 388.
42. Lieb, Op. Cit., p. 49.
43. The Coal Book, Op. Cit., p. 33.

TABLE 1

GROSS NATIONAL PRODUCT BY SECTOR, SELECTED YEARS, 1929-1985
(percent)

<u>SECTOR</u>	<u>1929</u>	<u>1950</u>	<u>1960</u>	<u>1970</u>	<u>1975</u>	<u>1985</u>
Agriculture, Forestry	8.6	5.7	4.5	3.2	3.2	2.6
Mining	3.9	2.2	2.0	1.8	1.6	3.6
Construction	5.8	5.4	6.2	5.2	4.1	4.5
Manufacturing	25.4	24.6	23.3	24.2	22.7	21.7
Transportation, Communication	6.3	7.2	7.8	8.8	9.4	9.0
Wholesale and retail	19.4	16.4	16.0	16.6	17.7	16.9
Finance, Insurance	11.6	12.1	13.9	14.3	15.1	14.6
Services	11.1	11.1	11.2	11.6	12.1	15.0
Government	7.2	14.1	14.5	14.1	13.6	11.1
Rest of World	.7	1.1	.7	.1	.6	1.1

SOURCE: Study of Federal Aid, U.S. Department of Transportation, January 1977, p. II-15 and Survey of Current Business, July 1986, U.S. Department of Commerce, p. 63.

TABLE 2

VALUE ADDED BY MANUFACTURING, BY REGION, 1919-1982
(percent of U.S. total)

<u>YEAR</u>	<u>EAST</u>	<u>MIDWEST</u>	<u>SOUTH</u>	<u>WEST</u>
1919	48.7	35.6	13.5	6.6
1939	39.7	37.1	15.8	7.4
1960	31.6	35.5	20.3	12.6
1972	26.4	34.9	25.4	13.4
1977	23.7	34.4	27.5	14.5
1982	23.7	29.7	29.5	17.1

SOURCE: Study of Federal Aid, U.S. Department of Transportation, January 1977, Appendix Table 6 and Statistical Abstract of the United States, 1986, 106th edition, U.S. Department of Commerce, 1985, p. 750.

TABLE 3

VOLUME OF INTERCITY FREIGHT

(Millions of Revenue Ton-miles)

<u>YEAR</u>	<u>RAILROADS</u>	<u>TRUCKS</u>	<u>WATER CARRIERS</u>	<u>OIL PIPELINES</u>	<u>AIR</u>
1944	746,912	58,264	150,155	132,864	71
1960	579,130	285,483	220,253	228,626	778
1975	759,000	454,000	342,000	507,000	4,000
1985	898,000	600,000	348,000	562,000	6,390

SOURCE: Railroad Facts, 1986, Association of American Railroads, September 1986, p. 32.

TABLE 4

PERCENTAGE OF TOTAL VOLUME OF INTERCITY FREIGHT

(Percent of Revenue Ton-miles)

<u>YEAR</u>	<u>RAILROADS</u>	<u>TRUCKS</u>	<u>WATER CARRIERS</u>	<u>OIL PIPELINES</u>	<u>AIR</u>
1944	68.6	5.4	13.8	12.2	0
1965	44.1	21.7	16.7	17.4	0
1975	36.7	22.0	16.6	24.5	.2
1985	37.2	24.8	14.4	23.2	.3

NOTE: Water carriers refer to carriers on inland rivers and canals and the Great Lakes.

SOURCE: Railroad Facts, 1986, Association of American Railroads, September 1986, p. 32.

TABLE 5

FREIGHT REVENUES
RAILROAD COMPARED TO UNITED STATES TOTAL

<u>YEAR</u>	<u>RAIL REVENUE (\$ billions)</u>	<u>TOTAL U.S. FREIGHT REVENUE (\$ billions)</u>	<u>RAIL REVENUES AS PERCENT OF U.S. FREIGHT REVENUE</u>
1975	17	115	14.8
1980	28	213	13.1
1982	27	221	12.2
1983	27	241	11.2
1984	31	262	11.9
1985	29	272	10.6

SOURCE: Transportation in America, Transportation Policy Associates, March 1987, p. 4.

TABLE 6

SELECTED INFORMATION ON TRANSPORTATION OF MANUFACTURED COMMODITIES

<u>COMMODITY</u>	<u>VALUE PER TON (in dollars)</u>	<u>RAIL SHARE (percent of tons)</u>	<u>TOTAL TONS ALL MODES (thousands)</u>
All Commodities	405.55	16.5	3311992
Instruments, Photo, etc.	10,564.04	9.9	2397
Electrical Mach. and other	5,626.68	16.1	16273
Leather and Leather Prod.	5,411.84	1.1	1503
Machinery, ex. electrical	4,752.20	13.4	25820
Miscellaneous Products of Man.	4,498.00	6.4	4502
Tobacco Products	3,962.42	31.2	2262
Transportation Equipment	2,673.87	46	59391
Textile Mill Products	2,573.78	5.8	13709
Furniture and Fixtures	2,035.48	12.8	8371
Rubber and Related Products	2,002.74	16.1	18978
Printed Matter	2,000.48	3.4	24891
Fabricated Metal Products	1,355.47	17.8	60922
Primary Metal Products	560.40	33.7	183741
Pulp, Paper and Allied Prod.	483.24	43.1	107525
Food and Kindred Products	449.32	22.8	426587
Chemicals and Allied Products	357.48	33.3	323299
Apparel, and other	294.07	4.9	5645
Lumber and Wood Prod.	109.21	19.5	356978
Petroleum and Coal Prod.	100.57	6.8	997731
Stone, Clay and others	56.69	6.6	653496

SOURCE: Calculations based on data in 1977 Census of Transportation, Commodity Transportation Survey-Summary, U.S. Department of Commerce, June 1981, Table 2.

TABLE 7

RANKING OF RAILROAD SYSTEMS BY OPERATING REVENUES: 1985

<u>Railroad</u>	<u>Operating Revenues</u> <u>(thousands)</u>	<u>Percent</u> <u>of Total</u>	<u>Cumulative</u>
CSX Corporation	\$4,688,144	17.0%	17.0%
Burlington Northern	4,040,540	14.6	31.6
Union Pacific Corp.	3,709,696	13.4	45.0
Norfolk Southern Corp.	3,425,194	12.4	57.4
Conrail	3,153,648	11.4	68.8
Southern Pacific Corp.	2,443,968	8.9	77.7
Atchison, Topeka & Santa Fe	2,144,360	7.8	85.5
Remaining Systems	3,980,891	14.5	100.0

SOURCE: Railroad Ten-Year Trends, Association of American Railroads, 1986,
Table 1-4.

TABLE 8

MILES OF ROAD AND TRACK OWNED BY CLASS I RAILROADS

<u>Year</u>	<u>Miles of Road</u>	<u>Miles of Track</u>
1929	229,530	381,417
1939	220,915	364,174
1955	211,459	350,217
1970	196,479	319,092
1975	191,520	310,941
1980	164,822	270,623
1985	145,764	242,320

SOURCE: Railroad Facts, 1986, Association of American Railroads, September 1986, p. 42.

TABLE 9

COMPOSITION OF RAIL CAR FLEET, 1985

<u>Type</u>	<u>Total</u>	<u>Class I Railroads</u>	<u>Other Railroads</u>	<u>Car Companies and Shippers</u>
Box Cars				
Plain Box	141,050	93,911	33,544	13,595
Equip. Box	136,405	122,283	13,609	513
Covered Hoppers	299,172	155,594	12,299	131,279
Flat Cars	138,839	84,953	4,905	48,981
Refrigerator Cars	55,083	41,906	3,323	9,854
Gondolas	160,958	111,771	16,347	32,840
Hoppers	285,517	283,019	23,730	23,768
Tank	181,194	1,614	66	179,514
Others	23,468	17,019	3,263	3,186
Total	<u>1,421,686</u>	<u>867,070</u>	<u>111,086</u>	<u>443,530</u>

SOURCE: Railroad Facts, 1986, Association of American Railroads, September 1986, p. 47.

TABLE 10

RAIL DISTRIBUTION OF TONNAGE AND REVENUES
AMONG MAJOR COMMODITY GROUPS - 1985

<u>Commodity</u>	<u>Percent of Total Tons</u>	<u>Percent of Freight Revenue</u>	<u>Rank</u>	
			<u>Tons</u>	<u>Revenue</u>
Coal	40.8%	23.2%	1	1
Farm Products	9.6	7.0	2	5
Nonmetallic Minerals	8.2	3.4	3	9
Chemicals & Allied Products	8.1	11.8	4	2
Food & Kindred Products	5.6	8.0	5	4
Lumber & Wood Products	4.8	5.4	6	7
Metallic Ores	3.5	1.4	7	13
Stone, Clay & Glass Products	3.3	3.4	8	8
Pulp, Paper & Allied Products	2.7	5.8	9	6
Primary Metal Products	2.5	3.1	10	10
Petroleum & Coal Products	2.5	3.0	11	11
Transportation Equipment	2.1	11.1	12	3
Waste & Scrap Materials	1.9	1.6	13	12
All Others	4.4	11.8		

SOURCE: Railroad Ten-Year Trends, Association of American Railroads, 1986,
Table III-C-7.

TABLE 11

MAJOR COAL-HAULING RAILROAD SYSTEMS: SELECTED
1985 STATISTICS

<u>Railroad</u>	<u>Percent of Total Railroad Tons of Coal Originated</u>	<u>Coal as Percent of Total Tonnage</u>	<u>Coal as Percent of Total Revenue</u>
CSX Corporation	29.8	49.6	33.8
Burlington Northern	24.1	58.9	39.6
Norfolk Southern	21.3	54.8	35.3
Union Pacific	8.0	29.4	16.1
Conrail	6.2	31.9	15.6
Illinois Central Gulf	4.3	39.3	18.5
Denver & Rio Grande Western	2.9	78.7	37.5

SOURCE: The Coal Book, Association of American Railroads, pp. 23-24.

TABLE 12

SELECTED MEASURES OF PRODUCTIVITY
OF RAILROAD LABOR, 1975-1985

<u>Year</u>	<u>Freight Revenue Ton-Miles Per</u>		<u>Employees Per</u> <u>Mile of Road</u> <u>Operated</u>
	<u>Employment</u> <u>(Millions)</u>	<u>Employment Hours</u> <u>Paid For</u>	
1975	1.6	676	2.1
1980	2.1	862	2.2
1981	2.2	906	2.1
1982	2.2	927	1.9
1983	2.6	1,073	1.9
1984	2.9	1,169	2.0
1985	2.9	1,195	1.9

SOURCE: Railroad Ten-Year Trends, Association of American Railroads, 1986,
Table III-B-6.

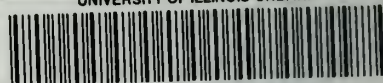
TABLE 13

RAILROAD FUEL EFFICIENCY RELATIVE TO OTHER MODES

<u>Mode</u>	<u>Propulsion Energy Expressed in BTU's Per Net Ton-Mile</u>
<u>Railroads</u>	
Overall	660
Unit Coal Train	370
<u>Truck</u>	
Average Intercity	2,100
<u>Barge</u>	
Overall	420
Upstream	580
Downstream	220
<u>Air</u>	
All-Cargo Plane	26,250
<u>Other</u>	
Coal Slurry Pipeline	1,000

SOURCE: Railroad Ten-Year Trends, Association of American Railroads, 1986,
Table III-D-4.

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